



Jackson Hole Fire/EMS Operations Manual

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Title: **Procedure Guidelines:
Intraosseous Infusion**

Division: 17

Article: 2.2

Revised: May-2011

Pages: 3

INTRAOSSEOUS INFUSION (Procedure Guidelines)

SCOPE OF PRACTICE

All EMT-Intermediates and Paramedics shall operate within their authorized Scope of Practice as limited to those skills and medication approved for use by the Physician Medical Director and Physician Task Force on Pre-Hospital Care as approve and authorized by the Wyoming Board of Medicine

INDICATIONS:

1. Peripheral IV cannot be established easily and patient's condition requires immediate vascular access for fluids or medications
2. Adult catheter : > 35 kg or 16 years of age
Pediatric catheter: 3-39 kg (approx. 7-86 lbs)
Large Adult catheter: Humeral head placement or Obese patient

MEDICATIONS:

All intravenous fluids and medications approved for prehospital administration intravenously can be administered through an intraosseous line.

SITE LOCATIONS:

- Proximal tibia
- Distal Tibia
- Humeral head

CONTRAINDICATIONS:

- Fracture of the bone through which you intend to gain IO access
- Previous orthopedic procedures (IO within 24 hours, knee replacement) (*consider alternate tibia*)
- Pre-Existing Medical Condition (*tumor near site or peripheral vascular disease*)
- Infection at insertion site (*consider alternate site*)
- Inability to locate landmarks (*significant edema, consider alternate site*)

CONSIDERATIONS:

1. Flow rates:

Due to the anatomy of the IO space you will note flow rates to be slower than those achieved with IV catheters.

- Ensure the administration of a 10 ml rapid bolus (flush) with a syringe
- Use a pressure bag or pump for continuous infusions

2. Pain:

Insertion of the IO in conscious patients causes mild to moderate discomfort and is usually no more painful than a large bore IV. Visceral pain develops once infusion of fluids begins.

3. STANDING ORDER for 60 mg (3 ml) of 2% Lidocaine for pain once in adults. Pediatric patients should receive 1 mg/kg, if no contraindications exist. Consider requesting orders for additional administrations of Lidocaine to manage pain as needed.

PRECAUTIONS:

The IO is not intended for prophylactic use.

EQUIPMENT:

EZ-IO™ Driver (or other IO device)
EZ-IO™ Needle Set
Alcohol or Betadine Swab
Extension Set or EZ-Connect™
10 ml Syringe
Normal Saline (or suitable sterile fluid)
Tape or Gauze
Pressure Bag

PROCEDURE:

(If the patient is conscious, advise them of the EMERGENT NEED for this procedure and obtain informed consent.)

1. Wear approved Body Substance Isolation Equipment
2. Locate insertion site
 - a. **Pedi:** One-finger width below the tibial tuberosity then medial along flat aspect of the tibia. If no tibial tuberosity is present – the needle should be inserted two finger widths below the patella and then medial along the flat aspect of the tibia.
 - b. **Proximal tibia:** Find the tibial tuberosity and insert IO 2 cm inferior and medial, on the flat anteromedial aspect of the tibia.
 - c. **Distal tibia:** Find the medial malleolus and insert IO one-finger width above
 - d. **Humeral head:** Place pt supine and adduct pt's arm so that their hand is resting on their umbilicus. Firmly palpate the humeral shaft, progressing superiorly until the greater tubercle is palpated. Insert IO slightly anterior to the lateral midline of the arm at the greater tubercle. **This site is easily dislodged with shoulder movement so consider securing pt's arm with sling.**
3. Cleanse insertion site using aseptic technique
4. Stabilize extremity and insert EZ-IO™ needle set through the skin until contact with bone is made.
5. Verify that 5mm mark on catheter is visible. If not, select longer IO needle and return to step #3.
6. Activate drill with constant drill speed and apply moderate, steady pressure against bone.
7. Stop when you feel the “pop” or when desired depth has been obtained.
8. Remove EZ-IO™ Driver from needle set while stabilizing catheter hub

9. Remove stylet from needle set, place stylet in shuttle or sharps container
10. Confirm placement
11. Connect primed EZ-Connect™
12. Flush or bolus the EZ-IO™ catheter with 5-10 ml of normal saline using a 10 ml syringe. Prior to flush, consider the aspiration of a small amount of blood prior to any fluid.
No flush=No flow
Consider 60 mg 2% Lidocaine (3ml) if semi-conscious patient or significant pain response.
13. Place a pressure bag on solution being infused where applicable
14. Begin infusion
15. Dress site, secure tubing and **apply wristband**
16. Monitor EZ-IO™ site and patient condition

